

Some Critical Notes on the Giant Katydids Forming the Group Steirodontia (Orthoptera, Tettigoniidae, Phaneropterinae).

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(Plate X.)

The notes gathered together in this paper have accumulated while studying the material of this group contained in certain large South and Central American and West Indian series of Orthoptera, now in our hands for determination. The remarks are grouped under the genera considered, but, aside from the revision of the forms of the *Stilpnochlora marginella* group, they are not presented as exhaustive or final, instead being intended merely as suggestions, to help the future student who has before him more material of this group of most interesting and striking species.

STILPNOCHLORA Stål.

1873. *Stilpnochlora* Stål, Öfvers. K. Vetensk.-Akad. Förhandl., 1873, No. 4, p. 40.
1906. *Microcentrum* Kirby (not of Scudder, 1862, as restricted), Synon. Catal. Orth., II, p. 455.

Genotype: *Phylloptera marginella* Serville (by original designation).

Kirby is quite in error in considering *Microcentrum* the proper name for this genus. It is in part *Microcentrum* of Scudder, but the genotype of the latter genus was properly selected by us as *affiliatum* Scudder (= *rhombofolium* Saussure).¹ As shown at the time of our selection of the genotype, Kirby selected as genotype of Scudder's genus a species not included in the genus by Scudder, so his fixation is erroneous. The action taken by us retains the names in their time-honored positions and is in accord with Article 30 of the Revised International Code of Zoological Nomenclature.

The known species of the genus *Stilpnochlora* are all before us at present, with the exception of Saussure and Zehntner's *ovalifolia*, which was described from Brazil,² and concerning

¹ Proc. Acad. Nat. Sci. Phila., 1908, p. 398 (1908).

² Biol. Cent.-Amer., Orth., I, p. 369 (1898).

which we can say nothing. The other forms fall quite naturally into four divisions, which in a linear fashion we would arrange as follows: *S. thoracica* Serville (= *tolteca* Saussure and authors); the *marginella* group, comprising *marginella* (Serville), *couloniana* (Saussure), *quadrata* (Scudder) and *laurifolium* (Linnaeus); *S. azteca* (Saussure); and last, *S. incisa* Brunner.

We would consider *S. thoracica* more divergent from the Steirodontid genera following *Stilpnochlora* than the other groups of the genus, and *S. incisa* nearer them, with *azteca* relatively close to it, both having a short inflated type of pronotum and a tendency of the lateral margins of the pronotal disk to be elevated. The *marginella* group clearly holds an intermediate position. At this writing we have no important information to give on any of the sections of the genus except the *marginella* group, which is a very plastic assemblage of four species, the relationships of which were not comprehended previously.

Stilpnochlora marginella Group.

This group, the greater portion of which was formerly considered to represent a single widely distributed species, for which the name *marginella* was used, is composed of four species, two of which—*marginella* and *laurifolium*—are quite distinct from each other and from the other forms—*quadrata* and *couloniana*—which are much more closely related.

Serville's *marginella*³ was described from the Cape of Good Hope, of course in error, as all the members of the genus are American. There is nothing sufficiently diagnostic in its description to enable us to definitely place the name, but it is very probable he had Brazilian material, as much of his South American material came from that region, and Stål, the first author to comment on Serville's species, associated Brazilian material with it. In consequence of this we feel warranted in restricting Serville's name to the form of eastern Brazil and the Guianas, at least until an examination of the Serville material, if still extant, can be made. Saussure, in 1861, described the Cuban form of this group as *Phylloptera couloni-*

³ Hist. Nat. Ins., Orth., p. 405 (1839).

ana,⁴ while, in 1869, Scudder described *Steirodon quadratum*⁵ from Guayaquil, Ecuador, which appears to us to be the form of this species group found in Mexico, Central America and northwestern South America.

Linnaeus, in 1758, gave the name *Gryllus* (*Tettigonia*) *laurifolius*⁶ to the insect figured by Sloane in his Natural History of Jamaica,⁷ which is the most distinct member of this species group.

The distribution of these forms is most interesting and to a measure suggestive of the relationship of certain faunas. The eastern Brazilian species, *marginella* (Serville), ranges from at least as far south as the State of São Paulo, north to Trinidad and Surinam. The Central American form, *quadrata* (Scudder), covers an area extending from central Mexico south to western Ecuador and probably Peru (Saussure as *marginella*), while along the north coast of South America it apparently extends eastward, as it occurs in Trinidad with *marginella*. The Cuban *couloniana* is known only from that island and Florida, while *laurifolium* is limited to Jamaica. The close affinity of the Mexican and Cuban forms is additional evidence of the Mexican influence in the Greater Antilles.

The chief feature which distinguishes the species is the form of the stridulating field of the tegmina of the male. This is least extensive, with its free margin almost regularly arcuate and hardly angulate, and having a short stridulating vein, in *marginella*; in *couloniana* the field is broader, with a rounded obtuse angulation at the extremity of the vein, which is somewhat heavier and longer; in *quadrata* the breadth of the field is distinctly greater, the margin is more decidedly obtuse-angulate and but little rounded, while the stridulating vein is more elongate; finally, in *laurifolium* the field is very broad, the margin is more decidedly angulate and the stridulating vein quite long and greatly thickened and elevated.

The pronotum of the male shows a corresponding increase

⁴ Révue et Magasin de Zoologie, 2e ser., XIII, p. 128 (1861).

⁵ Proc. Boston Soc. Nat. Hist., XII, p. 331 (1869).

⁶ Syst. Nat., X ed., p. 429 (1758).

⁷ II, p. 201, pl. 236, figs. 1 and 2 (1725).

in width as the stridulating field widens, while in the female this difference in the form of the pronotum is apparently the only feature which will readily separate the forms. Females of *couloniana* and *quadrata* are very similar, so much so that they are sometimes extremely hard to separate. We have given figures of the principal differences separating the species, as they are so comparative that their use in a key would be difficult and at most unsatisfactory. We find no other features of sufficient importance to use as diagnostic features.

Stilpnochlora marginella (Serville). Plate X, fig. 1.

1839. *Phylloptera marginella* Serville, Hist. Nat. Ins., Orth., p. 405. ["Cape of Good Hope."]

1869. *Phylloptera magnifolia* Walker, Catal. Derm. Salt. Brit. Mus., II, p. 377. (Part.) [Brazil; Guayaquil.]

Trinidad. (F. W. Urich.) One male. [A. N. S. P.]

Surinam. V, 1881. (C. G. Hering.) One female. [U. S. N. M.]

Cayenne. One male. [A. N. S. P.]

Peixe Boi, east of Pará, Pará, Brazil. XI to XII, 1907. (H. B. Merrill.) Two females. [A. N. S. P.]

Igarapé-assú, Pará, Brazil. (H. S. Parish.) One male. [A. N. S. P.]

Bonito, Pernambuco, Brazil. XI, 1883. (A. Koebele.) One male. [U. S. N. M.]

Piracicaba, São Paulo, Brazil. One male, one female. [Hebard Cln.]

The species has been previously recorded from as far south as Rio de Janeiro, Brazil. This form is smaller than the average of the other types of this group. It has the narrowest pronotum and stridulating field of the male tegmina and the general form is faintly more compressed than in the other species. The specimens from Piracicaba have the lateral lobes of the pronotum faintly narrower in proportion to their depth. The male stridulating field is identical in its important features with the north Brazilian males. We consider these specimens to represent the extreme condition of *marginella*.

Stilpnochlora coulöniana (Saussure). Plate X, figs. 2 and 7.

1861. *Phylloptera coulöniana* Saussure, *Révue et Magasin de Zoologie*, 2e ser., XIII, p. 128. [Cuba.]

1862. *M[icrocentrum] thoracicum* Scudder (not *Steirodon thoracicus* Serville, 1831), *Boston Journ. Nat. Hist.*, VII, p. 447. [Tortugas, Florida.]

Cuba. One male, two females. [Hebard Cln.]

Cabañas, Pinar del Rio, Cuba, IX, 5 to 8, 1913. One male. [A. M. N. H.]

Santiago, Oriente, Cuba, X to XII, 1913. One male, one female. [A. N. S. P.]⁸

Guantanamo, Oriente, Cuba. VIII, 7, 1913. (C. T. Ramsden, at light.) One female. [A. N. S. P.]

This species is only known from Cuba, the Isle of Pines and the peninsula of Florida. In Cuba it seems to occur over the whole island and in Florida it occurs as far north as Gainesville. Elsewhere a considerable number of Floridan references have been given, which it is unnecessary to discuss in this summary. The affinity of *coulöniana* with *quadrata* is marked and its origin is to our mind clearly evident. Its distribution and affinity is comparable to the distribution of *Mantoida maya* and *Phrixa maya*.

The tegmina of Cuban specimens of this species are broader proportionately than in *quadrata*, and in the female sex this is the one evident feature to separate the two forms. In Florida material, however, the tegmina are somewhat narrower and the females are almost indistinguishable from Mexican individuals. The Florida males, however, are fully typical of *coulöniana*.

Stilpnochlora quadrata Scudder. Plate X, figs. 3 and 6.

1869. *Steirodon quadratum* Scudder, *Proc. Boston Soc. Nat. Hist.*, XII, p. 331. (April, 1869.) [Guayaquil, Ecuador.]

1869. *Phylloptera magnifolia* Walker, *Catal. Derm. Salt. Brit. Mus.*, II, p. 377. (Part.) (Not earlier than October, 1869.) [Brazil; Guayaquil.]

Monte Redondo, Costa Rica. III, 30, 1895. (C. F. Underwood.) One male. [Hebard Cln.]

⁸ Previously recorded by us (Sec. Rep. Cent. Exper. Sta. Cuba, p. 210, 1909) as *S. marginella*.

Cartago, Costa Rica. IX, 19, 1909. (P. P. Calvert; well sustained flight around electric light in plaza.) One male. [A. N. S. P.]

Cauca, Colombia. (Fortunato Bonis.) Two females. [A. N. S. P.]

Medellin, Colombia. IX, 1912. (Fr. A. Maria.) One male. [Hebard Cln.]

Jimenez, Colombia, elev. 1600 feet. VII, 1907. (M. G. Palmer.) One male. [A. N. S. P.]

Caparo, Trinidad. VI, 1913. (S. M. Klages.) One male, [A. N. S. P.]

All previous records of *marginella* made by us on the basis of Mexican and Costa Rican material relate to this species. From our present knowledge *quadrata* has the widest distribution of any form of the genus. It occurs from north-central Mexico (Tepic) and northern Yucatan south to at least Ecuador and probably Peru, east to Trinidad, where its range touches or overlaps that of *S. marginella*. At its northern limit the range extends to the limit of mainland connections (Yucatan) in the direction of its very near ally, the Cuban *couloniana*.

There is much size variation in the species, some in the general form of the pronotum, and to a lesser degree in the pronotal outline, but the male sex is not difficult to separate from *couloniana*. The females, on the other hand, are much more troublesome, as Floridan female individuals of *couloniana* are almost indistinguishable from that sex of *quadrata*. On close comparison it will be seen that the females of *quadrata* have slightly more elongate tegmina, with the sutural margin showing a less distinct angle at the distal fourth and the marginal field more regularly attenuate. Cuban *couloniana* females, which show an appreciably wider tegmen, are more readily differentiated.

Stilpnochlora laurifolium (Linnaeus). Plate X, fig. 4.

1758. [*Gryllus* (*Tettigonia*)] *laurifolius* Linnaeus, Syst. Nat., X ed., p. 429. ["Indiis."]

1878. *Stilpnochlora* *coulonia* Brunner (not *Phylloptera couloniana* Saussure), Monogr. der Phaneropt., p. 359. [Jamaica.]

Cinchona, Jamaica. II, 26, 1911. (J. A. Grossbeck.) One male. [Amer. Mus. Nat. Hist.]

Montego Bay, Jamaica. III, 1911. (J. A. Grossbeck.) One male. [Amer. Mus. Nat. Hist.]

Montego Bay, Jamaica. XII, 1913, and III, 1914. (C. G. Hussey.) Three males. [Hebard Cln.]

This is the most striking member of the genus, and it is found in a relatively restricted and most isolated habitat for a *Stilpnochlora*. Quite curiously it has not been previously recognized from material since Sloane's drawing (the basis of *laurifolius* Linnaeus), aside from Brunner's comments on a male from Jamaica which showed differences from *marginella*. Sloane's original figure was based on a specimen which "came amongst some Scotch Grass, brought from the Caymanes for the Horses, and was taken in the Stable and kept alive on Sugar and Water for some Time."⁹ It is very probable the specimen was a native Jamaican insect, which found a congenial resting place on the Cayman grass. Linnaeus' name was erroneously used for a great many years for a North American species of *Microcentrum*, a misuse apparently due to the failure of authors to verify the source of the name. The figure of Sloane is clearly a *Stilpnochlora*, and as far as can be determined represents the present species.

The species has a development of the stridulating field of the male, which is very great; in fact, it is the most striking thing about that sex of the insect. We have not examined the female and can make no comment on that sex, as it is apparently unknown at this writing.

The measurements (in millimeters) of two representative males of this species are as follows:

| | Montego Bay Jamaica XII, 1913 | Montego Bay Jamaica III, 1914 |
|--|-------------------------------------|-------------------------------------|
| Length of body | 31 | 33 |
| Length of pronotum | 9.5 | 9.5 |
| Greatest caudal width of pronotal disk..... | 8.3 | 8.4 |
| Length of tegmen | 60 | 59.5 |
| Greatest width of tegmen | 20.2 | 19.6 |
| Greatest width of stridulating field of tegmen | 9.4 | 9.5 |
| Length of caudal femur | 32.3 | 32.5 |

⁹ Nat. Hist. Jamaica, II, p. 201, pl. 236, figs. 1 and 2 (1725).

STEIRODON Serville.

Kirby's treatment of the specific names under this genus is incorrect, as he completely ignores Stål's examination¹⁰ of the Linnean material of *Gryllus (Tettigonia) citrifolius*.

The original material, according to Stål, belongs to the genus *Posidippus*. As this material was examined by a competent student its importance completely overshadows the Roesel figure¹¹ referred to by Linnaeus, which quite clearly depicts a member of the genus *Peucestes*.

Kirby, however, apparently without any justification, considers Linnaeus' species to be a *Steirodon*. The above explanation will show the error of his association.

As we have already shown,¹² the genus *Steirodon* must have as its type, there designated some months before Kirby's indication, *Phylloptera citrifolia* Thunberg (not *Gryllus (Tettigonia) citrifolius* Linnaeus), the original material of which is a *Steirodon* according to Stål, who renamed it *Steirodon calidum*. The *Locusta citrifolia* of DeGeer¹³ is clearly a *Posidippus*, while Stoll's *Locusta citrifolia*¹⁴ is with equal certainty a *Peucestes*.

The genera *Steirodon* and *Peucestes* are extremely close, in fact females of *Peucestes dentatus* are quite liable to be mistaken for species of *Steirodon*, as the distal ramus of the median vein of the tegmina in the four females seen reaches the apex of the tegmina, a feature supposed to be characteristic of *Steirodon*. Males of the same species, however, do not show this peculiarity, the ramus reaching the sutural margin. More material may show the necessity of uniting *Peucestes*, in whole or at least in part, with the older *Steirodon*.

PEUCESTES Stål.

For remarks on the close relationship of *Peucestes* and *Steirodon* see above under the latter genus.

Peucestes striolatus Brunner.

1878. *P[euces]tes striolatus* Brunner, Monogr. der Phaneropt., p. 366.
[Pernambuco and Bahia, Brazil; Panama; Peru.]

¹⁰ Recens. Orthopt., II, p. 45 (1874).

¹¹ Insect. Belust., II, p. 107, pl. XVI, fig. 1.

¹² Proc. Acad. Nat. Sci., Phila., 1905, p. 807 (1906).

¹³ Mém. Ins., III, p. 437, pl. 37, fig. 3 (1773).

¹⁴ Natuur. Afbeeld. Besch. etc., Zabelspr., p. 11, pl. IVa, fig. 12 (1813).

Chanchamayo, Peru. Three males, four females. [A. N. S. P.]

The Chanchamayo series clearly belongs to this species, but may represent a new geographic race characterized by the greater compression of the pronotum.

Peucestes dentatus Stål.

1874. *Peucestes dentatus* Stål, Recensio Orthopt., II, p. 45. [Panama; Cayenne.]

Orotina, Costa Rica. X, 11, 1915. (A. Alfaro; night.) One female. [A. N. S. P.]

Costa Rica. Two females. [A. N. S. P. and Hebard Cln.]

Panamá. One male. [U. S. N. M.] One female. [Hebard Cln.]

Cauca, Colombia. One male. [A. N. S. P.]

The species *dentatus* appears to us to be quite distinct from *coronatus*. Saussure and Zehntner seem to have had the best conception of the species of this genus and their relationship.

The genus *Steiroidon* is dangerously close to this species, as we have already remarked above. Females of this species, as we understand it, have the distal rami of the median vein of the tegmina reaching to apex.

The Panamá male is slightly different from the Cauca individual, but the differences are not specific.

Peucestes championi Saussure and Zehntner.

1898. *Peucestes championi* Saussure and Zehntner, Biol. Cent.-Amer., Orth., I, p. 371, pl. XVIII, figs. 6 to 9. [Panzos, Vera Paz, Guatemala; Cachi (Caché), Costa Rica.]

Cachi, Costa Rica, 3500 feet elevation. (C. H. Lankester.) One male. [A. N. S. P.]

This specimen is perfectly typical of the species. We do not feel sure that Saussure and Zehntner's sex association is correct, as the female, from the figure, seems quite different. We have, however, no evidence on this except that furnished by the figures.

Generic divisions united by Brunner under Posidippus.

A. Cephalic margin of pronotal disk with median tooth. Tegmina proportionately broad; marginal field equal to one-half tegminal width at proximal third. Median and caudal tibiae not distinctly

expanded proximad. (Fastigii of the vertex and face subequal in width. Pronotal lateral margins regularly crenato-dentate. Cephalic tibiae with foramina narrowly open on cephalic face, broadly open on caudal face) **Posidippus** Stål.

(Genotype: *Gryllus (Tettigonia) citrifolius* Linnaeus.)

AA. Cephalic margin of pronotal disk without median tooth. Tegmina proportionately narrow, more lanceolate; marginal field not equal to one-half tegminal width at proximal third. Median and caudal tibiae distinctly expanded or even lamellate proximad (except in *Frontinus deggerii* and *rarospinulosus*).

B. Fastigium of the vertex produced cephalad of the facial fastigium, rounded at the extremity; facial fastigium acuminate, narrower than the fastigium of the vertex. Pronotum with lateral margins of disk elevated, crassly dentate. Stridulating field of male tegmina with free margin sinuate. Cephalic tibiae with foramina rimato-conchate on both faces. Median and caudal tibiae compressed, decidedly lamellate in proximal half.

Cnemidophyllum new genus.

(Genotype: *Posidippus lineatus* Brunner.)

BB. Fastigii equally produced or the fastigium of the face projecting cephalad of that of the vertex, in width either subequal or the facial fastigium twice as wide as that of the vertex, both bituberculate. Pronotum with lateral margins not distinctly elevated, finely crenulate. Stridulating field of male tegmina with free margin arcuate. Cephalic tibiae with foramina rimato-conchate on cephalic face and open on caudal face. Median and caudal tibiae compressed, not decidedly lamellate.

C. Fastigii equally produced, in width subequal.

Frontinus Stål.

(Genotype: *F. deggerii* Stål.)

CC. Fastigium of the face projecting cephalad of that of the vertex, the facial fastigium twice as wide as that of the vertex, both bituberculate..... **Steiroidonopis** Scudder.

(Genotype: *S. bilobata* Scudder.)

POSIDIPPUS Stål.

1874. *Posidippus* Stål, Recens. Orthopt., II, pp. 20, 45.

Genotype: *Gryllus (Tettigonia) citrifolius* Linnaeus.

The restricted genus *Posidippus* certainly includes, in addition to the genotype, *P. validus* Saussure and Zehntner, while of the exact generic position of *stålî*, *dohrni* and *irregulariterdentatus* Brunner and *barcellus* Pictet we cannot speak at present, having examined no material of these forms, all of which have been placed in *Posidippus* as generally understood.

Posidippus citrifolius (Linnaeus).

1758. [*Gryllus* (*Tettigonia*)] *citrifolius* Linnaeus, Syst. Nat., ed. X, p. 429. ["Indiis."]

1869. *Steirodon dentiferum* Walker, Catal. Dermapt. Brit. Mus., II, p. 391. [Unknown locality.]

Bogotá, Colombia. Two females. [U. S. N. M.]

Chanchomayo, Peru. One male, one female. [A. N. S. P.]

Contamano, Rio Ucayali, Peru. X to XII, 1912. Two males. [A. N. S. P.]

Porto Velho, Rio Madeira, Brazil. (Mann and Baker; M. Bolton.) Two males. [A. N. S. P.]

Rio Una, forty-six miles south of Bahia, Brazil. (A. de Lacerda.) One male. [M. C. Z.]

Piracicaba, São Paulo, Brazil. Three females. [Hebard Cln.]

This specific name has been variously considered to belong to members of three genera, i. e. *Steirodon*, *Peucestes* and *Posidippus*, but all question of the proper association of it should be set at rest by Stål's examination of the Linnean material. Regardless of the Roesel figure, quoted by Linnaeus, which clearly represents a species of *Peucestes*, the testimony of Linnaeus' material, which belongs to *Posidippus*, as here understood, is the measure of proof. The synonymy of *dentiferum* is given on the authority of Kirby, who examined the Walk-erian material and so associated it.

The material now before us shows the species has some variation in the exact form of the free margin of the stridulating field of the tegmina of the male and, as usual in the group, in the exact number of the lateral marginal dentations on the pronotum. There is also an appreciable, though slight, amount of variation in the compression of the lateral pronotal carinae. This latter feature is correlated with the degree of concavity of the cephalic margin of the disk of the same. These variations appear to be almost entirely individual.

The species is now known to range from the region of Bogotá to Surinam and eastern Brazil, south to eastern and central Peru.

Posidippus validus Saussure and Zehntner.

1898. *Posidippus validus* Saussure and Zehntner, Biol. Cent.-Amer., Orth., I, p. 373, pl. XVIII, figs. 10 and 11. [Chontales, Nicaragua.]

Panamá. (Drs. G. W. and W. Nelson.) One male. [U. S. N. M.]

Hacienda Cincinnati, Santa Marta, Colombia, 4000 to 5000 feet elevation. VII, 1913. (M. A. Carriker, Jr.) One female. [Hebard Cln.]

These specimens are perfectly typical of *validus*, which is readily separated by the characters given by Saussure and Zehntner. The features of the stridulating field of the tegmina of the male we are unable to compare with *citrifolius*, as the single available individual of that sex of *validus* has that area broken. The present female is slightly under the original measurements.

The species is seen to range from Nicaragua to northern Colombia.

CNEMIDOPHYLLUM¹⁵ new genus.

1891. *Posidippus* Brunner, Verh. K.-k. Zool.-botan. Gesell. Wien XLI, pp. 183, 184. (Part.)

Genotype: *Posidippus lineatus* Brunner.

Form compressed. Eyes ovato-globose in basal outline; fastigium of vertex narrow, compressed, produced, moderately declivent, sulcate, rounded at apex; fastigium of face covered by fastigium of vertex, very narrow. Pronotum with disk concave; cephalic margin non-dentate; lateral margins moderately elevated crasso-dentate; disk expanding in width caudad. Tegmina lanceolate; sutural margin straight for the greater portion of its length; marginal field equal to two-fifths of the total tegminal width; stridulating field of male broad, free margin sinuate, stridulating vein robust, elongate. Cephalic femora with four spines on ventro-cephalic margin; cephalic tibiae inflated proximad, foramina rimato-conchate on both faces; median tibiae greatly compressed and lamellate expanded on proximal half, margins of expansion spined. Caudal femora simple, ventral margins spined; caudal tibiae greatly

¹⁵ From *κνημῖς* *greaeves* and *θυλλον* *leaf*.

compressed and lamellate expanded on proximal one-half, margins of expansion spined. Mesosternal lobes acute-angulate. Metasternal lobes broadly rounded acute-angulate.

This genus includes, as far as we know, only the genotypic species. Its form is very striking and it is clearly defined from *Posidippus*, as well as from the aberrant genera *Frontinus* and *Steiroidonopis*.

Cnemidophyllum lineatum (Brunner). Plate X, figs. 5, 8 and 9.
1891. *Posidippus lineatus* Brunner, Verhandl. K.-k. Zool.-botan. Gesell. Wien, XLI, pp. 183, 184. [Upper Amazons.]

Contamano, Rio Ucayali, Peru. X to XII, 1912. One male.
[A. N. S. P.]

This remarkable species has been sufficiently described by Brunner, than whose type our individual is slightly smaller. As the present specimen has been dried from alcohol it has lost all its original coloration, excepting the dark markings, which are distinctly indicated and disposed as described by Brunner. The minute striolations of the tegmina are also very faintly indicated.

The species is known only from the two records.

FRONTINUS Stål.

1874. *Frontinus* Stål, Recens. Orthopt., II, pp. 20, 46.

Genotype: *Frontinus degeerii* Stål.

We feel that no useful purpose is served in longer retaining within the genus *Posidippus*, the well defined species which constitute this and the following groups. In detailed characters they are as clearly defined as any of the allied genera, while their general appearance is so distinct they are easily recognized. The policy of Brunner was to consider them members of *Posidippus*.

From the related *Steiroidonopis*, Stål's genus can be readily separated by the fastigii being sub-equal in width and length, while (in *degeerii* at least) the stridulating field of the male tegmina is broad and extensive, with the stridulating vein heavy, arcuate and sub-transverse. This genus includes *raro-spinulosus* Brunner in addition to the genotypic species.

Frontinus degeerii Stål. Plate X, fig. 11.

1874. *Frontinus degeerii* Stål, Recens. Orthopt., II, p. 46. [Surinam.]

Costa Rica. (C. F. Underwood.) One male. [Hebard Clu.]

This specimen fits the description of *degeerii* more closely than it does that of the allied *rarospinulosus*, but the acquisition of Guianan material may show it to be different. Unfortunately at this writing no topotypic material is available.

This is the first Central American record of a species of this genus.

STEIRODONOPIS Scudder.

1875. *Steiroidonopsis* Scudder, Proc. Boston Soc. Nat. Hist., XVII, p. 259.

Genotype: *Steiroidonopsis bilobata* Scudder.

An examination of the unique type of Scudder's species enables us to associate his genus, which was ignored by some European students of this group. Quite evidently his work was done well within the year 1874, as the paper containing it was presented for publication December 16th, of that year. However, the date of actual publication of Scudder's genus is March, 1875.

From *Frontinus* the present genus can be very easily distinguished by the frontal fastigium being twice as wide as the fastigium of the vertex, the former projecting cephalad of the latter, while the stridulating field of the male tegmina is narrow, with the stridulating vein weak, nearly straight and oblique. In addition to *bilobata*, the genus contains *brunneri* Bolivar, which, however, may be identical with Scudder's species.

Steiroidonopsis bilobata (Scudder). Plate X, fig. 10.

1875. *Steiroidonopsis bilobata* Scudder, Proc. Boston Soc. Nat. Hist., XVII, p. 260. [Peruvian Marañon.]

1878. *P[osidippus] fastigosus* Brunner, Monogr. der Phaneropt, p. 370. [Quito, Ecuador.]¹⁶

1915. *Steiroidonopsis (sic) scudderi* Bruner, Ann. Carneg. Mus., IX, p. 317. [Province of Sara, Bolivia.]

¹⁶ Doubtless Quito was the point from which the specimen was received, although there is no doubt in our minds but that, along with birds and other natural objects, it was brought to Quito from the eastern part (Oriente) of Ecuador, or an adjacent portion of Peru or Colombia. Bogotá, Colombia, served for many years as such a distributing point for bird skins, as is well known to students of South American birds. Our opinion as to the true original locality of the typical material is re-enforced by Brunner's latest reference to material of the species from the upper Amazons.

Bartica, British Guiana. II, 12, 1913. (H. S. Parish.) One male. [A. N. S. P.]

Peruvian Marañon. One male, *type*. [M. C. Z.]

Chanchomayo, Peru, 1000 meters elevation (two specimens.) Two with no date; others II and V, 1910. Three males, two females. [A. N. S. P.]

As we have said above, the type of Scudder's species is before us, a unique male, and there is no doubt in our minds as to the synonymy of Brunner's *fastigosus*. Brunner's *Steiroidonopsis* (sic) *scudderi*, from the Province of Sara, Bolivia, appears to us to be only a small specimen of *bilobata*; in fact, the Bartica male here recorded is but faintly larger than his measurements. The material before us would fully fit his description. Regarding Bolivar's *Posidippus brunneri*¹⁷ we cannot speak with such certainty, as the description is not as conclusive. It is certainly very close, if not identical, with the present species.

The number of spines on the dorsal margins of the median tibiae vary considerably in this species, often greatly on the two limbs of the same individual. Our specimens show the following count:

| | Dorso-cephalic margin | Dorso-caudal margin |
|---------------------------------------|--------------------------|------------------------|
| ♂ Bartica, British Guiana | $\frac{3}{3}$ | $\frac{4}{5}$ |
| ♂ Peruvian Marañon, <i>type</i> | $\frac{3}{3}$ | $\frac{4}{4}$ |
| | other tibia missing | |
| ♂ Chanchomayo, Peru | $\frac{2}{2}$ | $\frac{4}{6}$ |
| ♂ Chanchomayo, Peru | $\frac{3}{5}$ | $\frac{3}{6}$ |
| ♀ Chanchomayo, Peru | $\frac{3}{1}$ | $\frac{5}{6}$ |

The range of the species is almost covered by the records given above. The previous records were all from the upper Amazonian region, except the certainly erroneous Quito one, upon which we have already commented, and Bruner's records of the synonymic *scudderi* and *fastigosus* from the Province of Sara, Bolivia.

¹⁷ An. Soc. Españ. Hist. Nat., X, p. 484 (1881). [Napo, Ecuador.]

EXPLANATION OF PLATE X.

Stridulating field of the sinistral tegmen of male (x 2).

- Fig. 1—*Stilpnochlora marginella* (Serville). Cayenne.
 Fig. 2—*Stilpnochlora coulouiana* (Saussure). Santiago, Cuba.
 Fig. 3—*Stilpnochlora quadrata* (Scudder). Jimenez, western Colombia.
 Fig. 4—*Stilpnochlora laurifolium* (Linnaeus). Cinchona, Jamaica.
 Fig. 5—*Cnemidophyllum lineatum* (Brunner). Contamano, Rio Ucayali, Peru.
 Lateral outline of tegmen of male (x 1½).
 Fig. 6—*Stilpnochlora quadrata* (Scudder). Cauca, Colombia.
 Fig. 7—*Stilpnochlora coulouiana* (Saussure). Santiago, Cuba.
 Fig. 8—*Cnemidophyllum lineatum* (Brunner). Lateral view of male. Contamano, Ucayali, Peru (x 1¼).
 Fig. 9—*Cnemidophyllum lineatum* (Brunner). Lateral view of fastigium of male. (Greatly enlarged.) a—base of antennae.
 Fig. 10—*Steiroidonopis bilobata* Scudder. Dorsal outline of fastigii. Male. (Greatly enlarged.)
 Fig. 11—*Frontinus deggerii* Stål. Dorsal outline of fastigii. Male. (Greatly enlarged.)

An Aid in the Entomology of New Jersey.

Dr. John W. Harshberger, Professor of Botany in the University of Pennsylvania, Philadelphia, has just published an attractive volume, "The Vegetation of the New Jersey Pine-Barrens An Ecologic Investigation" (Philadelphia, Christopher Sower Co., 1916. 8vo., pp. xi, 329. 284 figs., folding map). This is, of course, essentially a botanical work, which supplements Stone's "The Plants of Southern New Jersey," issued in 1911 by the New Jersey State Museum, "including only that which has not been mentioned by Stone, or in a very casual and unemphatic way." Although there are three pages of "Notes on a few insect galls of the pine barrens," Dr. Harshberger's book will be chiefly of interest to entomologists in the vegetative background which it furnishes for the study of the rich insect fauna of New Jersey.

Data on the Far Southwestern States Wanted (Lep.).

The Entomological Department of the Southwest Museum (Los Angeles, California) is engaged in the compilation of a check list of diurnal Lepidoptera occurring in the Southwest. The territory includes Colorado, New Mexico, Arizona and California. It is planned particularly to secure definite data as to the exact locality of occurrence and month of greatest abundance of all the rarer and more localized forms, namely those which are restricted in range.

With this list it is also planned, if possible, to include a directory of Entomologists residing in the four States named.

The Museum will appreciate data from all collectors having material from the territory in question. Communicate with DR. JOHN COMSTOCK, 1275 Bellevue Avenue, Los Angeles, or with the Entomological Department, Southwest Museum, Avenue 46 and Marmion Way, Los Angeles, California.